

Contents

<i>Preface</i>	<i>vii</i>
1. Supramolecular Chemistry	1
History • Control of Supramolecular Chemistry • Concepts in Supramolecular Chemistry • Structural Units • Applications • Organic Chemistry	
2. Applications of Analytical Chemistry	23
Laser-induced Breakdown Spectroscopy • Laser Ablation • Genomics • Proteomics • Metabolomics • Transcriptome • Lipidomics • Microscale Chemistry • Macrocycle	
3. Molecular Modelling	59
Molecular Mechanics • Variables • Applications • Cheminformatics • Computational Chemistry • Force Field (Chemistry) • Nanotechnology	
4. Energy Applications of Nanotechnology	104
Ollé Prize • Nanobiotechnology • nanoHUB • Nanometrology • Nanotechnology Education • Top-down and Bottom-up Design • Density Functional Theory	
5. Molecular Dynamics	165
History • Areas of Application • Steered Molecular Dynamics (SMD) • Design Constraints • Microcanonical Ensemble (NVE) • Molecule Editor • Molecular Graphics • Monte Carlo Method • Protein Domain	
6. Chemistry of Carbohydrate	223
What is a Carbohydrate? • Aldoses • Ketoses • Monosaccharide	

- Derivatives • Carbohydrate Synthesis • Background
• Oligosaccharide Synthesis • Glycosidic Bond Formation
• Current Methods in Glycoside Synthesis • Fischer Glycosidation
• Koenigs-Knorr Reaction • Protecting Groups
• Oligosaccharides • Carbohydrate-mediated Cell Adhesion
• Molecular Recognition and Catalysis

Bibliography 243

Index 247